P-6.4 Compare intensity and loudness

Revised Taxonomy Level 2.6 Compare conceptual knowledge

This concept was not addressed in physical science

It is essential for students to

- Understand that the loudness of a sound is a subjective term which depends upon the intensity of the sound source, the frequency of the sound, the distance from the sound, and the acuity of the listener
- Understand that the intensity of a sound is an objective measurement
  - Dependent upon the power of the source and the area that the sound has covered
  - I =P/A where I is sound intensity, P is sound power in watts and A is the square area in meters
  - Intensity is measured in units of watts per square meter
- Solve problems involving the intensity of various sounds

Assessment

As stated in the indicator, the major focus of assessment is to compare (detect correspondences) in the terms loudness and intensity and in the ways that they are measured and used. Because the indicator is written as conceptual knowledge, assessments should require that students understand the "interrelationships among the basic elements within a larger structure that enable them to function together." In this case, assessments must show that students understand the reasons for the difference in the way that the variables are measured in the two types of circuits based on their knowledge of current flow in the two circuits.